

Work Order ID 149538

Monday, July 25, 2016 2:27:20 PM

149538

Page 1

Item ID: D3571-1

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Guide

Start Date: 7/14/2016 Start Qty: 4.00 ***4***

Cust Item ID:

Required Date: 7/25/2016 Req'd Qty: 4.00 ***4***

Customer:

Reference:

Approvals: Process Plan: DAS 21 Date: **AUG 02 2016** Tooling: _____ Date: _____Run Start ***NR1***QC: 9-89 Date: _____ SPC (Y/N): _____ Date: _____Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

D3571

Rev A

100

0.00

100

BAND SAW

Bandsaw

Memo

0.06

Jeaspa Bandsaw

Cut blank 2.90 " long

10

Ø

DAS
20
9-89

16-09-07

110

0.19

110

HAAS CNC VERTICAL MACHINING #1

HAAS 1

Memo

0.21

HAAS CNC vertical machine #1

1- Mill as per Folio FA675 Rev: A & Dwg D3571 Rev: A 2-Deburr
per dwg D3571

10

Ø

DAS
44
9-89

16-09-11

120

0.00

120

QC2- Inspect parts off machine FAI/FAIB

QC

Memo

0.01

Quality Control

10

Ø

DAS
44
9-89

16-09-11

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____	
Description Work Order Deviation		Disposition			

Root Cause	FAULT CATEGORY				
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Work Order ID 149538***149538***

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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	QC8- Inspect parts - second check	0.00							
130									
QC									
Quality Control									

Memo

0.01

B. = 16/09/12

10

φ

DAS
08
9-09

140

Chemical Conversion Coat per QSI005 4.1

0.00

140

HandFinish

Memo

0.03

Hand Finishing

(X10)

φ

2016/09/13
BEB

150

Grey Sandtex(Ref:4.2.5.6) per QSI005 4.3

0.00

150

Powdercoat

Memo

0.01

Powder Coating

START TIME:

9:25

OVEN TEMPERATURE:

30 FINISH TIME:

9:55

10 φ 16-09-15

2016/09/15

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Work Order ID 149538

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149538

Page 3

Item ID: D3571-1

Accept

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Stop ***NS2***

Item Name: Guide

Start Date: 7/14/2016 Start Qty: 4.00

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Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	QC3- Inspect Part Finish	0.00							
160									
QC	Memo	0.01				10			DAS 38 9-89 SEP 15 2016
Quality Control									
170	Identify as per dwg & Stock Location: Stock	0.00							
170									
Packaging	Memo	0.01				10			DAS 6 9-89 SEP 16 2016
Packaging									
180	QC21- Final Inspection - Work Order Release	0.00							
180									
QC	Memo	0.07							DAS 21 9-89 SEP 16 2016
Quality Control									DAS 21 9-89 SEP 16 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
							Completed By _____		
							Lead hand / Supervisor Approval Verification _____		
							QC / QA Coordinator Approval _____		

Root Cause				FAULT CATEGORY							
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong	☐
Design	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing	☐
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing	☐
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish	☐
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread	☐
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence	☐
Past Expiry Date	☐	Manufacturing Process	☐	OTHER : 							
Misidentified	☐	Past Due	☐								

Picklist Print

Monday, July 25, 2016 2:27:20 PM

Page 1
1

Work Order ID: 149538

149538

Parent Item: D3571-1

D3571-1

Parent Item Name: Guide

Start Date: 7/14/2016

Required Date: 7/25/2016

Start Qty: 4.00

Required Qty: 4.00

Comments: IPP Rev:A New Issue 07-02-01 JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M6061T6B0.750X01.50 0		Purchased	No			100	f	19.8657	0.241	1.014737			

M6061T6B0 750X01 500

2.583'

DAS
20
9-89 1609-07

6061-T6 Bar .750 X 1.50

Location

Loc Qty

Loc Code

MAT

19.8657

134284

1.301

m131700

2.7905

m132876

0.25

m134377

3.137

m134984

0.3872

m135247

12

2.583'

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : _____					

DART AEROSPACE LTD		Work Order: 149538
Description: Guide		Part Number: D3571-1
Inspection Dwg: D3571	Rev: A	Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
0.698	+/-0.010	.696	/		Vern	FK-04
Ø1.00 Depth 100	+/-0.010	1.00 x 100	/		"	"
2.75	+/-0.030	2.751	/		"	"
1.38	+/-0.030	1.38	/		"	"
1.25	+/-0.030	1.247	/		"	"
0.63	+/-0.010	.63	/		"	"
0.031 chamfer	+/-0.010	.031	/		"	"
Ø0.500	+0.006/-0.001	.501	/		"	"
Ø0.201	+0.005/-0.001	.201	/		"	"
R0.25	+/-0.030	.28	/		R-G	
0.260	+0.000/-0.010	.256	/		Vern	FK-04
Ø0.385 x 100°	+0.006/-0.001 x 0.5°	.385 x 100°	/		"	"
0.125	+/-0.010	.126	/		"	"
2.250	+/-0.010	2.250	/		"	"
0.250	+/-0.010	.250	/		"	"
0.188	+/-0.010	.188	/		"	"
0.063 chamfer	+/-0.010	.063	/		"	"

DAS
44
9-89

Measured by:	DAS 44 9-89
Date:	16-09-11

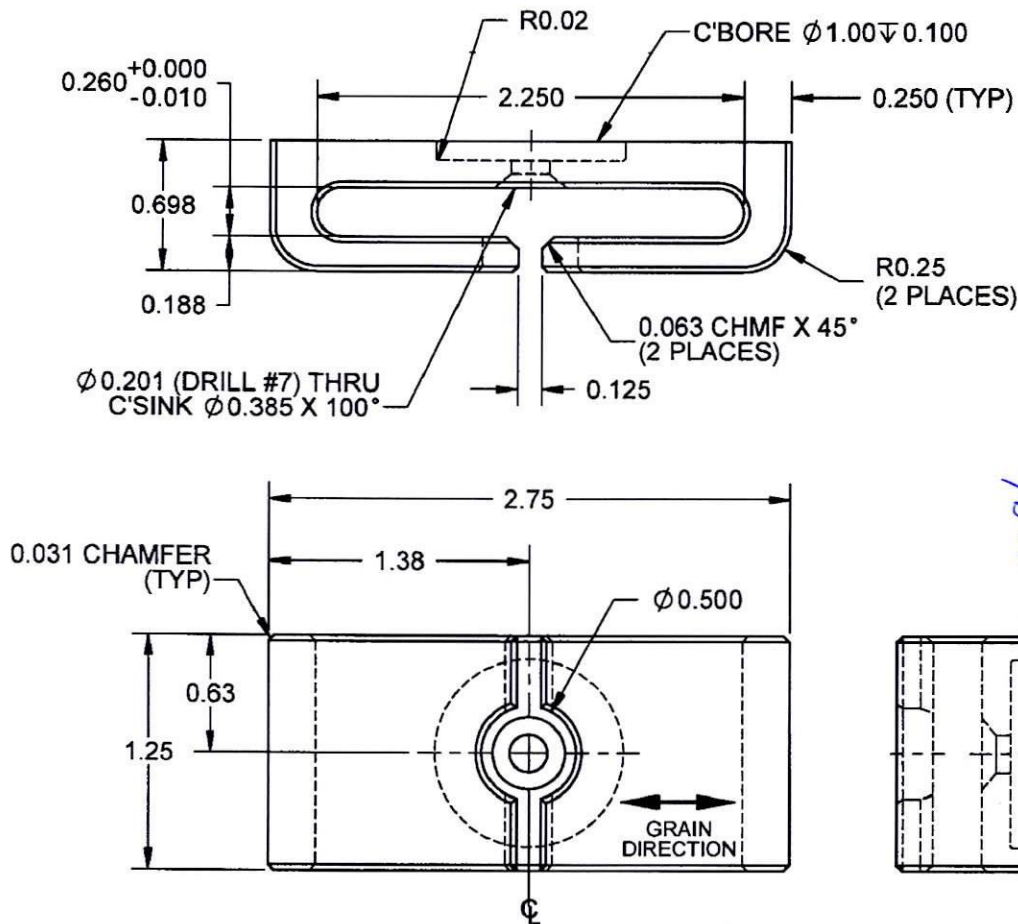
Audited by:	Ba DAS 08 9-89
Date:	16/09/12

Prototype Approval:	N/A
Date:	N/A

Rev	Date	Change	Revised by	Approved
A	07.04.16	New Issue	KJ/JLM	

DART

DESIGN <i>LE</i>	DRAWN BY <i>LE</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>PH</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D3571	REV. A SHEET 1 OF 2
DATE 07.01.29	TITLE GUIDE	SCALE 1:1	
REV A	DATE 07.01.29	DESCRIPTION NEW ISSUE	

RELEASED07.04.12 *[Signature]***D3571-1 GUIDE****NOTES:**

- 1) MATERIAL: 6061-T6 (OR T651/T6510/T6511/T62) ALUMINUM BAR
PER QQ-A-225/8 OR AMS 4117/4128/4115/4116
OR QQ-A-200/8 OR AMS 4160 (REF DART SPEC M6061T6B)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT GREY SANDTEX (4.3.5.6) PER DART QSI 005 4.3
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) IDENTIFY WITH DART P/N "D3571-1" USING FINE POINT PERMANENT INK MARKER
- 5) ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED
- 6) BREAK ALL SHARP EDGES 0.005 TO 0.010 MAX
- 7) PART IS SYMMETRIC ABOUT ϕ

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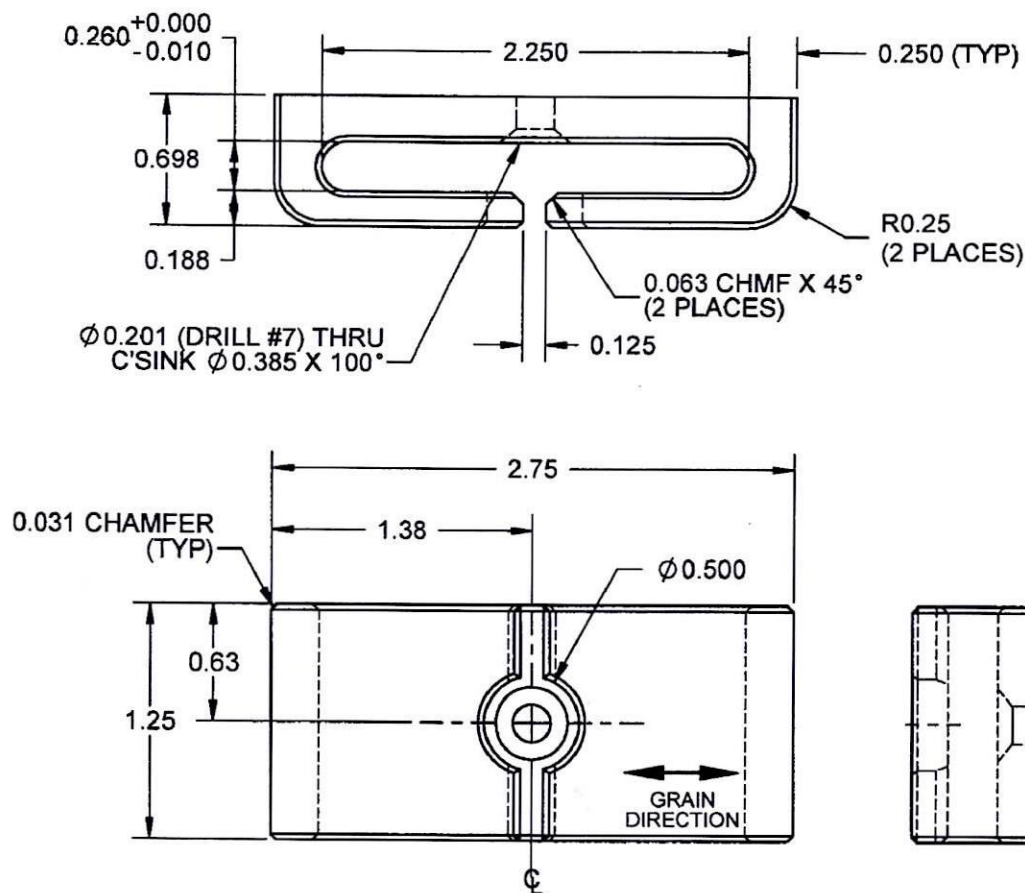
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DESIGN <i>LE</i>	DRAWN BY <i>LE</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>PH</i>	APPROVED <i>MA</i>	DRAWING NO. D3571	REV. A SHEET 2 OF 2
DATE 07.01.29		TITLE GUIDE	SCALE 1:1

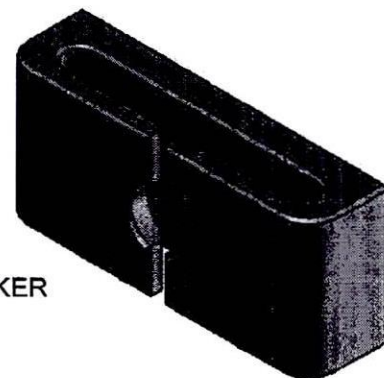
RELEASED
07.04.12



D3571-3 GUIDE

NOTES:

- 1) MATERIAL: 6061-T6 (OR T651/T6510/T6511/T62) ALUMINUM BAR
PER QQ-A-225/8 OR AMS 4117/4128/4115/4116
OR QQ-A-200/8 OR AMS 4160 (REF DART SPEC M6061T6B)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT GREY SANDTEX (4.3.5.6) PER DART QSI 005 4.3
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) IDENTIFY WITH DART P/N "D3571-3" USING FINE POINT PERMANENT INK MARKER
- 5) ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED
- 6) BREAK ALL SHARP EDGES 0.005 TO 0.010 MAX
- 7) PART IS SYMMETRIC ABOUT ϕ



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